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Mosses of the Philippine and Hawaiian Islands collected by the late
John B. Leiberger

R. S. WILLIAMS

PHILIPPINE SPECIES

TREMATODON CAPILLIPES C. Müll. Luzon: Mariveles Mountain,
1267.

Dicranella (*Anisothecium*) **Leibergerii** sp. nov.

Growing in rather soft, not very compact, brownish green mats; stems short, 4–5 mm. long and simple or sometimes with a single branch up to 1 cm. long; leaves laxly spreading-flexuous, narrowly lanceolate, up to 3 mm. long, widest (about 0.35 mm.) near the base and uniformly narrowed to the acute or narrowly obtuse, slightly denticulate apex, the margins below entire and flat or slightly recurved; costa one sixth or less the width of the leaf-base and nearly or quite percurrent; leaf-cells all more or less linear with slightly thickened walls, the median 6–8 μ wide and often 100 μ long, the basal wider, mostly 10–12 μ ; perichaetial leaves with loosely clasping, somewhat larger base than those of the stem; seta rather weak, finally reddish, mostly 8–9 mm. long; capsule erect, oval-oblong, 1–1.5 mm. long without lid, becoming cylindric and somewhat contracted under the mouth when old and dry, the exothecal cells with somewhat thickened, nearly straight lateral walls, the median cells 16–20 μ wide by 35–60 μ long, the stomata at the base few or quite lacking; lid obliquely subulate, about 0.75 mm. long; annulus none; peristome-teeth about 250 μ high, regular, lanceolate, reddish brown below and vertically striate, divided about half way down into pale, papillose forks and borne on a basilar membrane scarcely extending above the rim; spores rough, 16 μ in diameter; calyptra cucullate, smooth, extending well down the capsule.

Polillo Island: May, 1909, 1260.

In habit this species is much like *D. flaccidula* Mitt. of Fiji and Samoa, but the latter has an annulus, a different peristome, and spores only 3–4 μ in diameter.

LEUCOLOMA MOLLE (C. Müll.) Mitt. Luzon: Mariveles Mountain,
July, 1909, 1273.

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- DICRANOLOMA BLUMEI (Nees) Ren. Luzon: Mariveles Mountain, July, 1904, 1211.
- LEUCOBRYUM JAVENSE (Brid.) Mitt. Luzon: Mariveles Mountain, July, 1909, 1220.
- LEUCOBRYUM SANCTUM Hampe. Luzon: Tignaon, Lobayet Divide, May, 1909, 1250.
- LEUCOBRYUM SERICEUM Broth. Luzon: Tignaon Valley, Tayabas Province, 350 m. alt., May, 1909, 1249.
- OCTOBLEPHARUM ALBIDUM (L.) Hedw. Luzon: Mariveles Mountain, 760 m. alt., July, 1909, 1218.
- ARTHROCORMUS SCHIMPERI Dz. & Mb. Luzon: Mariveles Mountain, July, 1904, 1212.
- FISSIDENS INVOLUTUS Wils. Luzon: Legaspi or Lobayet, 1909, 1254a. An Asiatic species not before credited to the Philippines.
- FISSIDENS MITTENI Paris. Polillo Island: May, 1909, 1252. This species of Ceylon, Java and Singapore is also new to the Islands.
- FISSIDENS ZIPPELIANUS Dz. & Mb. Luzon: Lobayet River, Tayabas Province, on rock, 1909, 1253.
- SYRRHOPODON ALBOVAGINATUS Schwaegr. Luzon: Infanta, Tayabas Province, at sea-level, May, 1909, 1262.
- SYRRHOPODON MUELLERI Dz. & Mb. Luzon: Lobayet, Tayabas Province, 1909, 1237.
- SYRRHOPODON SUBTUBULOSUS Broth. Luzon: Mariveles Mountain, 400 m. alt., on trees, July, 1904, 1215.
- CALYMPERES DOZYANUM Mitt. Luzon: Tignaon Valley, Tayabas Province, May, 1909, 1234.
- CALYMPERES MOLUCCENSE Schwaegr. Luzon: Infanta, Tayabas Province, on mangrove shrubs, May, 1909, 1235.
- HYOPHILA COMMUTATA Broth. Polillo Island: May, 1909, 1259. The first record of this species of Sumatra and Java for the Philippine Islands.
- Didymodon orientalis** (Willd.) comb. nov. (*Trichostomum orientale* Willd.; C. Müll. Syn. 1: 568. 1849.) Luzon: Legaspi, April, 1909, 1255.

BARBULA ANGUSTIFOLIA (Hook. & Grev.) C. Müll. Luzon: Legaspi, on old walls, May, 1909, 1256.

BARBULA CONSANGUINEA (Thw. & Mitt.) Sauerb. Luzon: Lobayet or Legaspi, 1909, 1254.

***Barbula lobayetensis* sp. nov.**

Dioicous, the male plant with one or two lateral appearing flowers each containing four or five antheridia, about 0.4 mm. long, and filiform paraphyses enclosed by two very broad, golden brown perigynial leaves scarcely longer than the antheridia: growing in rather thin mats with mostly simple stems 5–8 mm. long, radiculose below, leafy in the upper part and often bearing in the leaf-axils pale, branching filaments with star-shaped propagulae at their tips; stem-leaves irregularly flexuous or crispate when dry, up to 2.5 mm. long, nearly linear, sometimes slightly wider in the upper part, the somewhat recurved apex acute and denticulate, the margins below entire, papillose, flat in the upper leaf, sometimes recurved below; costa percurrent, 50–60 μ wide just above the base, in cross-section showing about four guide-cells, stereid bands above and below them and outer cells somewhat differentiated; cells of upper part of leaf distinct, papillose, mostly nearly square, about $6 \times 6 \mu$, in the lower third, rectangular, paler, mostly 8–10 μ wide by 20–30 μ long; perichaetial much like the stem-leaves but with somewhat larger, scarcely clasping base; seta 8–10 mm. long; capsule cylindric, about 1.5 mm. long without lid, the exothecal cells with thin walls, the median about 16 μ wide by 40–50 μ long, those at the rim somewhat transversely elongate, in four or five rows, the stomata few, in one row near the base; lid subulate, about 1 mm. long; annulus none; peristome reddish brown, finely papillose, the basal membrane extending 40–50 μ above the rim and bearing filiform teeth about 0.5 mm. long and twisted once around; spores pale, smooth, about 10 μ in diameter; calyptra slightly rough at the apex.

Luzon: Lobayet, Tayabas Province, on earth, May, 1909, 1258.

This species has propagula about like those of *B. sobolifera* Fleisch., but the leaves are very different; in habit it is quite similar to *B. pseudoehrenbergii* (Lorentz) Fleisch., a somewhat larger species with the apex of the leaf incurved and bearing in the axils of the leaves club-shaped propagula.

MACROMITRIUM ORHOSTICHUM Nees. Luzon: Mariveles Mountain, 400 m. alt., on trees, July, 1904, 1215b.

MACROMITRIUM ROBINSONII R. S. Williams, Bull. N. Y. Bot. Gard. 8: 344. 1914. Luzon: Mariveles Mountain, July, 1904, 1219.

- MACROMITRIUM SEMIPELLUCIDUM Dz. & Mb. Luzon: Mariveles Mountain, 400 m. alt., on trees, July, 1904, 1215a.
- POHLIA SAXENSIS R. S. Williams, Bull. N. Y. Bot. Gard. 8: 347. 1914. Polillo Island: May, 1909, 1272.
- ORTHOMNIUM STOLONACEUM Broth. Luzon: valley of Lobayet, Tayabas Province, May, 1909, 1241.
- WEBERA RUPESTRIS (Mitt.) C. Müll. Polillo Island: on wet banks, May, 1909, 1236a. Not before credited to the Islands.
- RACELOPUS PILIFER Dz. & Mb. Polillo Island: May, 1909, 1236.
- SPIRIDENS LONGIFOLIUS Lindb. Luzon: Mariveles Mountain, 760 m. alt., July, 1904, on trees, 1201.
- AEROBRYOPSIS LANOSA (Mitt.) Broth. Luzon: Mariveles Mountain, July, 1904, 1206.
- AEROBRYOPSIS LONGISSIMA (Dz. & Mb.) Broth. Luzon: Mariveles Mountain, 550 m. alt., July, 1904, 1207.
- FLORIBUNDARIA FLORIBUNDA (Dz. & Mb.) Fleisch. Luzon: Lobayet, Tayabas Province, 1909, 1245.
- NECKEROPSIS CRINITA (Griff.) Fleisch. Luzon: Infanta, Tayabas Province, 1909, 1240; Lobayet, Tayabas Province, 1251.
- NECKEROPSIS LEPINIANA (Mont.) Fleisch. Luzon: Lobayet river, Tayabas Province, May, 1909, 1248.
- HOMALIODENDRON MICRODENDRON (Mont.) Fleisch. Luzon: Mariveles Mountain, on tree, July, 1904, 1217a.
- DISTICHOPHYLLUM OSTERWALDII Fleisch. Luzon: Lobayet, Tayabas Province, 1909, without number.
- CALICOSTELLA BECCARIANA (Hampe) Jaeg. Polillo Island: May, 1909, 1224.
- CALICOSTELLA PAPILLATA (Mont.) Jaeg. Luzon: Tignaon, 1230; Infanta, Tayabas Province, on trees, May, 1909, 1263a.
- CHAETOMITRIUM PAPILLIFOLIUM Bryol. Jav. Polillo Island: May, 1909, without number.
- HYPOPTERYGIUM VRIESEI Bryol. Jav. Luzon: Tignaon, Tayabas Province, 1233.
- RHACOPILUM SPECTABILE Reinw. & Hornsch. Luzon: Tignaon, Tayabas Province, May, 1909, 1232.

- PSEUDOLESKEOPSIS DECURVATA* (Mitt.) Broth. Luzon: valley of Lobayet, Tayabas Province, river bank, May, 1909, 1223.
- PELEKIUUM VELATUM* Mitt. Polillo Island: 1909, 1239.
- THUIDIUM PLUMULOSUM* (Dz. & Mb.) Dz. & Mb. Luzon: valley of Lobayet, on trees at sea-level, May, 1909, 1237.
- ECTROPOTHECIUM CYPEROIDES* (Hook.) Jaeg. Luzon: Lobayet, Tayabas Province, May, 1909, 1231.
- ECTROPOTHECIUM MORITZII* C. Müll. Luzon: valley of Tignaon, Tayabas Province, on the ground at sea-level, May, 1909, 1221.
- TRISMEGISTIA LANCIFOLIA* (C. Müll.) Broth. Luzon: valley of Tignaon, May, 1904, 1225.
- ISOPTERYGIUM MINUTIRAMEUM* (C. Müll.) Jaeg. Apparently this species. Polillo Island: May, 1909, without number.
- TRICHOSTELEUM HAMATUM* (Dz. & Mb.) Jaeg. Luzon: Mariveles Mountain, on ground, logs, etc., 760 m. alt., July, 1904, 1218a.
- TRICHOSTELEUM PAPILLATUM* (Harv.) Jaeg. Luzon: valley of Tignaon, on the ground at sea-level, May, 1909, 1222. Polillo Island: May, 1909, 1228.
- TAXITHELIUM ALARE* Broth. Luzon: Mariveles Mountain, on decaying twigs, etc., July, 1904, 1203.
- TAXITHELIUM INSTRATUM* (Brid.) Broth. Luzon: Mariveles Mountain, 550 m. alt., July, 1904, 1205.
- VESICULARIA CAMPYLOTHECA* (Broth.) Broth. Luzon: Infanta, Tayabas Province, May, 1909, 1226. Polillo Island: May, 1909, 1229.
- VESICULARIA FILICUSPIS* Broth. Luzon: valley of Tignaon, on the ground at sea-level, May, 1909, 1221a.
- VESICULARIA MEYENIANA* (Hampe) Broth. Luzon: Infanta, Tayabas Province, on trees, May, 1909, 1263.
- SEMATOPHYLLUM HYALINUM* (Reinw.) Jaeg. Luzon: Mariveles Mountain, 600 m. alt., 1208; 760 m. alt., July, 1904, 1204; 870 m. alt., 1202.

HAWAIIAN SPECIES

DICRANELLA HAWAIIICA (C. Müll.) Broth. Oahu: Honolulu, March, 1909, 1261. Determined from the description only.

***Hymenostomum ovale* sp. nov.**

Dioicous, the male plant with a single terminal flower, the inner antheridial leaves very short and broad, deeply concave, sometimes obtuse, enclosing six to eight antheridia and rather abundant, slightly longer paraphyses: growing in rather compact, pale greenish cushions with mostly simple stems 2–3 mm. high; stem-leaves crispate when dry, 1.5–2 mm. long, nearly linear, acutely pointed, the margins entire and more or less inrolled in the upper three fifths either wet or dry; costa about $45\ \mu$ wide just above the base and one sixth the width of the leaf-base, slightly excurrent into a more or less incurved point, smooth on the back, in cross-section near the middle showing four guide-cells, stereid bands above and below them and outer cells on the ventral side large, on the dorsal side, scarcely differentiated; leaf-cells mostly four-sided, about $8 \times 8\ \mu$ in upper part, rather obscure and finely papillose on both upper and under surface, the basal cells rectangular, $8\ \mu$ wide by $25\text{--}30\ \mu$ long toward the costa, with slightly thickened, pale, not hyaline walls; perichaetial leaves much like those of the stem, but with slightly larger base; capsule oval, about 1 mm. long without the lid, the lid subulate, oblique, often nearly as long; exothecal cells thin-walled, elongate-hexagonal to rectangular, about $25\ \mu$ wide by $40\text{--}60\ \mu$ long, the stomata few, near the base, sometimes not evident; annulus and peristome none; spores rough, round, about $20\ \mu$ in diameter; calyptra cucullate, extending far below the lid, the apex smooth.

Oahu: Honolulu, March, 1909, 1247.

***Claopodium hawaiiense* sp. nov.**

Dioicous: growing in thin, yellowish green mats with irregularly branching, smooth stems mostly less than 1 cm. long, bearing few radicles and spreading-flexuous, not decurrent, somewhat complanate leaves; leaves of stem and branches very similar, about 0.5 mm. long, ovate-lanceolate, the tapering point serrulate, the border of one row of more or less differentiated cells, serrulate all round; costa often pale, about $16\ \mu$ wide at the base, smooth, extending into the point, sometimes appearing slightly excurrent; cells of upper part of leaf mostly rhomboidal, about $6\ \mu$ wide by $16\text{--}20\ \mu$ long, below more elongate and irregular, the upper and median cells mostly unipapillate on each side, the papillae sometimes extending almost to the leaf-base and very prominent on the

branch-leaves but often almost lacking on the lower part of the stem-leaves; perichaetial leaves loosely convolute, erect, smooth, broadly oblong-lanceolate, the inner nearly 1.5 mm. long with rather short, narrowly acute, not quite entire point; seta rough throughout, 10–12 mm. long; capsule oblong, nodding, about 1 mm. long without the lid, constricted under the mouth when dry, the exothecal cells mostly oblong with walls much thickened at the angles, the stomata few, near the base; annulus large; outer peristome finely cross-striate below, papillose in the upper part, the inner about as high as the outer, consisting of a high basal membrane, rather pale and minutely papillose, bearing narrow, keeled segments with short, narrow slits along the median line and terminating in filiform points with one or two slender, nodose cilia nearly as long, between them; lid conical, acute, its height slightly exceeding the basal diameter; spores not quite smooth, about 10 μ in diameter.

Oahu: Honolulu, March, 1909, 1227.

Compared with *C. prionophyllum* (C. Müll.) Broth. of India, Java and the Celebes, this species is perhaps slightly stouter and has broader, shorter pointed, more serrulate leaves as well as a rough seta.